

Ornduff, University of California, Berkeley for providing the fixed buds of *Cephalotus*.

## LITERATURE CITED

- JOHNSON, M. A. T. 1980. Chromosome numbers in *Akania* and *Cephalotus*. *Kew Bull.* 34: 37–38.  
 KEIGHERY, G. J. 1979. Chromosome counts in *Cephalotus* (Cephalotaceae). *Plant Syst. Evol.* 133: 103–104.  
 KONDO, K. 1969. Chromosome numbers of carnivorous plants. *Bull. Torrey Bot. Club* 96: 322–328.  
 KRESS, A. 1970. Zytotaxonomische Untersuchungen

an einigen Insectenfangern (Droseraceae, Byblidaceae, Cephalotaceae, Roridulaceae, Sarracenaceae). *Ber. Deutsch. Bot. Ges.* 83: 55–62.

RAVEN, P. H. 1975. The bases of angiosperm phylogeny: cytology. *Ann. Missouri Bot. Gard.* 62: 724–764.

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## A NEW *HESPEROMANNIA* (COMPOSITAE) FROM MAUI ISLAND: HAWAIIAN PLANT STUDIES 116

*Hesperomannia* (Compositae) consists of three species and four subspecific entities, mostly endemic to the single islands, Kauai, Oahu, Molokai, and Maui. They are attractive trees, with flower heads like large pink thistles. Now, another species has been discovered in west Maui.

***Hesperomannia mauiensis* sp. nov.** HOLOTYPE: Hawaiian Islands, west Maui Island, Iao Valley, Makalaloa Stream, steep forested slope, July 22, 1980, *Robert Hobdy* 859 (BISH).—Fig. 1.

Diagnosis Holotypi: Arbor 2.3–3.3 m alta est, petiolis 17–30 mm longis in basi puberulis, laminis 9.5–16 cm longis 4–7.5 cm latis chartaceis ellipticis acutis varie subacuminatis cuneatis subintegribus glabris, inflorescentia terminali ascendente puberula cum 4–5 capitibus, involucre 30–32 mm alto dense ascendente puberulo, phyllariis superis lineari-lanceolatis, flosculis 30–40 luteis, corollis cum tubo 15–17 mm longo lobis 12 mm longis 0.3 mm latis extra pilosulis, antheris 7–8 mm longis, aculeis pappi 27 mm longis.

Tree 2.3–3.3 m tall; leafy branchlets 2.5–5 mm in diameter, terete, brown, densely pale ascending puberulous; leaves in a plume at the branchlet tips; internodes 2–8 mm long; nodes scarcely enlarged; leaf scars 6–7 mm wide, lunate; bundle scars 7; petioles 17–30 mm long, puberulous only at base; blades 9.5–16 cm long, 4–7.5 cm wide, stiff chartaceous, elliptic, acute to subacuminate, the base cuneate, the margins subentire but un-

dulate, above dark green, glabrous, below green, glabrous, secondary veins 7–9 in each half, ascending, the lower ones straight, the upper arcuate; inflorescence terminal, racemose, with 4–5 heads, densely ascending puberulous; peduncle 2–5 mm long, 2.5–3 mm in diameter; pedicels 7–12 mm long; involucre 30–32 mm high, narrowly campanulate, with numerous imbricated phyllaries, these pinkish, but densely pale ascending puberulous, the lowest ones 2–3 mm long, ovate, acute, the median ones lanceolate, 3.5 mm wide, the upper ones linear lanceolate; florets 30–40, canary yellow; ovary 5.5 mm long, prismatic, puberulous; corolla tube 15–17 mm long, glabrous, the 5 lobes 12 mm long, 0.3 mm wide, almost linear, but tapering to an acute tip, sparsely pilosulous without, with a midrib; filaments 7–8 mm long; anthers 7–8 mm long, almost linear, finally splitting apart; style exerted, dark; pappus bristles 38, and 27 mm long, stramineous, mostly upwardly barbellate (mature achenes not seen).

The closest relative of this novelty is *H. arborescens* Gray ssp. *Swezeyi* (Deg.) Carlq., a plant with the blades oblanceolate (or narrowly so) or obovate, obtuse or subobtuse; all or at least the inner phyllaries glabrous; corolla tube 20 mm long, the lobes 18 mm long, 1.5 mm wide; anthers 9 mm long; and the pappus bristles 50. *Hesperomannia mauiensis* has the blades elliptic, acute to subacuminate; phyllaries all ap-



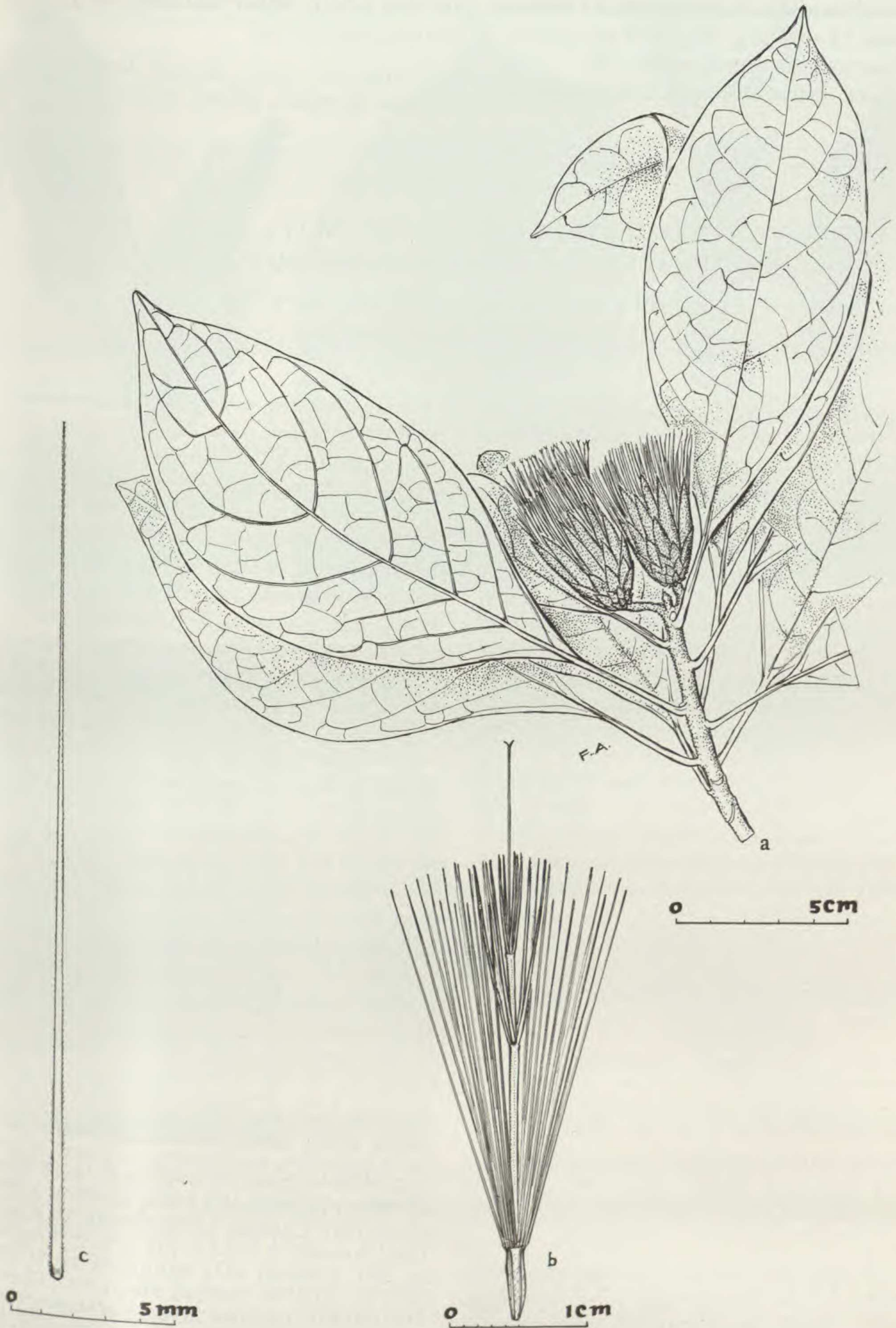


FIGURE 1. *Hesperomannia mauiensis* St. John, from holotype. a, habit,  $\times\frac{1}{2}$ ; b, floret,  $\times 2$ .



pressed puberulous; corolla tube 16–17 mm long, the lobes 12 mm long, 0.3 mm wide; anthers 8 mm long; and the pappus bristles 38.

The new epithet is formed from the name of

the type locality, Maui, and *-ensis*, the Latin adjectival place ending.

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## *TORTULA CHISOSA* SP. NOV., A BISTRATOSE-LEAVED SPECIES FROM THE UNITED STATES, MEXICO, AND SOUTHERN AFRICA

*Tortula chisosa* Magill, Delgadillo et Stark, sp. nov. is described here from material collected in North America and southern Africa. It is closely related to *T. ammonsiana* and *T. bartramii*.

In 1976, one of us reported the occurrence of an unusual specimen of *Tortula* from the mountains of west Texas (Magill, 1976). The specimen (Magill 1341) was of interest because of a unique combination of characters that separated it from all North American species of *Tortula*. In connection with a study of mosses of Zacatecas, Mexico (Delgadillo & Cárdenas, 1979), four specimens that are nearly identical with the Texas plants were obtained; L. Stark and R. C. Castetter collected five others in New Mexico, and R. Magill secured two additional collections in southern Africa. Comparison of these specimens against specimens and descriptions of other taxa suggests that the first represent an undescribed species of *Tortula*.

***Tortula chisosa* Magill, Delgadillo et Stark, sp. nov.**

Habitu et forma foliorum et propagulorum *T. ammonsiana* Crum et Anderson simile, sed foliis bistratosis et apicibus sine denticulatis et costa dorsali supra papillosa differt.

Plants with the habit of *T. ammonsiana*. Stem up to 6 mm tall, loosely tufted, dark brown to nearly black when dry, with a small central strand and an inconspicuous hyalodermis. Leaves loosely appressed when dry, erect spreading when moist, 0.5–0.7(–0.8) mm wide, 1.2–2.3 mm long, smaller toward the base of the stem, crowded near the tip, oblong to spatulate. Leaf blade bistratose, entire; margins plane; upper and median leaf cells quadrate or hexagonal, firm-walled, 8–

13  $\mu\text{m}$  in diameter, with several hollow c-shaped papillae per lumen; basal leaf cells hyaline, quadrate to rectangular, smaller toward margin, forming distinct fenestrations on lower third or fourth of the leaf. Costa reddish, excurrent as a short mucro, dorsally papillose on the upper third to halfway down, 58–103(–113)  $\mu\text{m}$  wide at mid-leaf, in section with a strong dorsal stereid band of 4–7 layers of cells, 2–4 guide cells and 2–4 adaxial papillose cells; the hydroid group is inconspicuous. Propagulae in groups on stalks in axils of upper leaves, stalked, costate, leaflike, with upper cells papillose, ending in a single hyaline smooth-walled apical cell, that may be subtended by 2 or 3 smooth-walled cells. Perichaetial leaves not differentiated. Male inflorescence and sporophyte unknown.

TYPE: U.S.A. TEXAS: Big Bend National Park, Chisos Mountains, on soil in small canyon below Lost Mine Trail, W side Lost Mine Peak, ca. 1,600 m, 19 June 1973, Magill 1341 (MO, holotype).

Additional specimens examined: U.S.A. NEW MEXICO: Doña Ana Co., ca. .25 mi E of Dripping Springs area, W side Organ Mountains, 32°19'N, 106°34'W, 2,072 m, 10 July 1980, Stark & Castetter 1154 (MEXU, PAC); Filmore Canyon, Organ Mountains, 32°21'N, 106°35'W, 1,813 m, July 1981, Stark & Castetter 3102A, 3105A, 3106A, 3107A (PAC). MEXICO. ZACATECAS: Cerro de la Bufa, 22°47'N, 102°34'W, 2,700 m, Junio 1979, Cárdenas 332b (MEXU); 2 km E Gualterio, Mpio. Chalchihuites, 23°35'N, 103°49'W, 2,250 m, Marzo 1981, Cárdenas 1077c (MEXU); La Boquilla, 7 km S Sombrerete, 23°34'N, 103°38'W, 2,380 m, Marzo 1981, Cárdenas 1113 (MEXU); 8 km N Pinos, 22°22'N, 101°35'W, 2,590 m, Marzo 1981, Cárdenas 1195 (MEXU). LESOTHO: 233 km E of Maseru, S of St. Theresa, canyon along Orange River, Dec. 1977, Magill 4242 (MEXU, PRE). SOUTH WEST AFRICA: Buchenberg summit, S Namib, Sept. 1977, Williamson 2675d (MEXU, PRE).